



Price vs. Usage Variance Analysis

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NAVY CEVM





Outline

- Price vs. Usage Analysis Concept
- Price vs. Usage Analysis formulas for both labor and material
- Labor Price vs. Usage example
- Material Price vs. Usage example





Price vs Usage Concept

- For every variance, there is a price component and a usage component
 - Labor variances are driven by hours, labor rates, or both
 - Material variances are driven by units, unit cost, or both
- For both labor and material, understanding the relative contribution of price versus usage helps to:
 - Validate the technical explanation in variance analysis reporting
 - Ensures that management attention and corrective action are properly focused





Price vs Usage Variance Formulas

Labor Analysis:

*Usage Variance = (BCWP Hours – ACWP Hours) * BCWP Labor Rate*

*Price Variance = (BCWP Labor Rate – ACWP Labor Rate) * ACWP Hours*

Material Analysis*:

*Usage Variance = (BCWP Units – ACWP Units) * BCWP Unit Cost*

*Price Variance = (BCWP Unit Cost – ACWP Unit Cost) * ACWP Units*

* Material price vs. usage analysis can be performed at the unit level for high value material or at a higher level for bundled low value material purchases





Labor Price Vs. Usage Example

	Hours	Rate (\$/Hr)	Total Cost	Net Variance
Baseline - all scenarios	100	80	\$8,000	N/A
ACWP - scenario 1	100	100	\$10,000	(\$2,000)
ACWP - scenario 2	125	80	\$10,000	(\$2,000)
ACWP - scenario 3	110	90.91	\$10,000	(\$2,000)

Scenario 1 - Correct hours estimate, but more expensive labor grade required

Usage Variance = (100 hrs - 100 hrs) * \$80/hr = \$0

Price Variance = (\$80/hr - \$100/hr) * 100 hrs = (\$2,000)

Scenario 2 - Additional hours required, but performing labor grade correct

Usage Variance = (100 hrs - 125 hrs) * \$80/hr = (\$2,000)

Price Variance = (\$80/hr - \$80/hr) * 100 hrs = \$0

Scenario 3 - Additional hours required, more expensive labor grade required

Usage Variance = (100 hrs - 110 hrs) * \$80/hr = (\$800)

Price Variance = (\$80/hr - \$90.91/hr) * 110 hrs = (\$1200)





Material Price Vs. Usage Example

	Units	Per Unit Cost	Total Cost	Net Variance
Baseline - all scenarios	18	2,000	\$36,000	N/A
ACWP - scenario 1	20	2,050	\$41,000	(\$5,000)
ACWP - scenario 2	17	1,960	\$33,320	\$2,680
ACWP - scenario 3	25	1,400	\$35,000	\$1,000

Scenario 1 - additional parts required due to damage, prices increased

Usage Variance = (18 units - 20 units) * \$2,000/unit = (\$4,000)

Price Variance = (\$2,000/unit - \$2,050/unit) * 20 units = (\$1,000)

Scenario 2 - reduced part usage (less loss than anticipated), price dropped

Usage Variance = (18 units - 17 units) * \$2,000/unit = \$2,000

Price Variance = (\$2,000/unit - \$1,960/unit) * 17 units = \$680

Scenario 3 - alternate vendor with a higher minimum buy, but low unit cost

Usage Variance = (18 units - 25 units) * \$2,000/unit = (\$14,000)

Price Variance = (\$2,000/unit - \$1,400/unit) * 25 units = \$15,000





Point of Contact

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